DISTINGUISHING "CROWDED" ORGANIZATIONS FROM GROUPS AND COMMUNITIES: IS THREE A CROWD?

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Abstract. In conventional wisdom on crowdsourcing, the number of people define the crowd and maximizing this number is often assumed to be the goal of any crowdsourcing exercise. However, we propose that there are structural characteristics of the crowd that might be more important than the sheer number of participants. These characteristics include (1) growth rate and its attractiveness to the members, (2) the equality among members, (3) the density within provisional boundaries, (4) the goal orientation of the crowd, and (5) the "seriality" of the interactions between members of the crowd. We then propose a typology that may allow managers to position their companies' initiatives among four strategic types: crowd crystals, online communities, closed crowd, and open crowd driven innovation. We show that incumbent companies may prefer a closed and controlled access to the crowd, limiting the potential for gaining results and insights from fully open crowd-driven innovation initiatives. Consequently, we argue that the effects on industries and organizations by open crowds are still to be explored, possibly via the mechanisms of entrepreneurs exploiting open crowds as new entrants, but also for the configuration of industries such as, e.g., finance, pharmaceuticals, or even the public sector where the value created usually comes from interpretation issues and exploratory problem solving.

Keywords: Crowd, crowdsourcing, distant search, online distributed innovation

Introduction

"*There is nothing that man fears more than the touch of the unknown. He wants to see what is reaching towards him, and to be able to recognize or at least classify it… All the distances which men create round themselves are dictated by this fear… It is only in a crowd that man can become free of this fear of being touched. That is the only situation in which the fear changes into its opposite*" (Canetti, 1962). These sentences from the beginning of *Crowd and Power* by the Philosopher Elias Canetti look either prophetic or explanatory today with regard to the impact of crowdsourcing in current digital business scenarios. Indeed, despite the hype, diffusion, and adoption of the diverse forms of crowdsourcing, it still remains an activity outside of the organization's boundaries or perhaps blurring those boundaries. Usually perceived as related to sourcing activities such as a low-cost labor/ideation force, crowdsourcing has not yet been investigated for its potential for shaping yet-unknown organizational forms that are not only virtual but also go beyond purely distributed to agents holding multiple roles across multiple crowds. To anticipate changes in organization and business innovation, we advance an analysis of the terms related to crowds to provide a classification scheme suitable to reduce the distance between formal organizations as we know them and "crowded" organizations. It is worth noting, however, that despite such questions being widely discussed by scholars and practitioners interested in, for example, models for the simulation of pedestrian dynamics and crowd management (Bandini, Manenti, Manzoni, & Manzoni, 2011; Batty, DeSyllas, & Duxbury, 2003; Cabinet Office, 2009), management perspectives seem to rely mainly on the "sourcing" part of the crowdsourcing. This can be seen in the most-cited definition by Howe: "*crowdsourcing is the act of taking a job traditionally performed by a designated agent (usually an employee) and*

outsourcing it to an undefined, generally large group of people in the form of an open call" (Howe, 2006, 2008), further stating *"the labor isn't always free, but it costs a lot less than paying traditional employees. It's not outsourcing; it's crowdsourcing,"*(Howe, 2006). This is often done without questioning the other terms or defining them in a rather general manner (Estélles-Arolas & González-Ladrón-de-Guevara, 2012), and not analytically considering crowd organizational behavior, structure, and social impact (Wexler, 2011), nor providing exact figures on how many members are necessary to form a crowd, from thousands of people, to a hundred in the case of businesses dealing with confidential information (Estélles-Arolas & González-Ladrón-de-Guevara, 2012). We believe that a further clarification of the "crowd" component of crowdsourcing is relevant to foster its innovation potential, moving beyond the premise of decision-making that makes crowdsourcing out to be only another low cost form of sourcing enabled by digital infrastructures.

Thus the questions we consider are: *What are the characteristics that allow a proper identification of a crowd with regard to other forms of collective or group organizations? How can organizations adapt to crowd-driven market and technological change? Is crowdsourcing yet another sourcing innovation or rather an integrated whole with tech startups and digital business organizations?*

Online distributed innovation: a crowd is not a group

How many people constitute a *crowd* compared to a *group*? In what follows, we introduce a summary of the key issues suitable to support these distinctions and a set of parameters to identify a crowd, based on prior work on real-life crowds. Then we can extend the insights from real crowds to digital crowds. The first issue is to identify the attributes of a given entity as part

of a social collective, if such attributes exist. The second issue, reconceptualizing social collectivity or the meaning of social groups as a phenomenon of *serial collectivity* (each member of the collective operates autonomously but interdependently to achieve a goal as developed below), has been investigated, e.g., by political scientists such as Iris Marion Young (1994). This stance relies on the Sartre distinction between *series*, a specific kind of social collectivity, and *groups* (Sartre, 1960|2004).

According to that perspective, a *group* is a collection of people who recognize themselves as being in a unified relation with one another, i.e., the mutual acknowledgment that they are undertaking a common project or action (e.g., storming the Bastille, building an amphitheater), thus all sharing the same goals (Young, 1994). Also, this acknowledgment usually tends to be made explicit as a collective project through some form of agreement, such as, for example, a statement of purpose, a contract, a pledge, etc. Consequently, a group can be defined as "*self-consciously, mutually acknowledging collective with a self-conscious purpose*" (Young, 1994). However, as Sartre noticed, some groups are often emergent from a kind of collective unity characterized by being less organized and certainly unselfconscious: a *series* (Sartre, 2004; Young, 1994).

Members of a series are unified passively by a response to the environment, the target of their actions, or by the effects of the structures resulting from past actions produced by others, either persons or organizations (routines, habits, protocols, etc.). As an example of a series, Sartre considered people waiting for a bus. Their being part of a collective is governed and bounded by the rules (routines related to social practices of public transportation) of "waiting for a bus" (the target material object of their action). However different they are in their experience,

class, identity, work, and education, they are unified by the goal of taking a specific bus following a given route. In a series, the individual experiences him- or herself and the others as *anonymous* and *interchangeable* (it is irrelevant whether I can go on the bus first, or within a second line of passengers, or sitting in the back or the front, depending on the time). As pointed out by Young (1994) in a series, individuals are isolated but not alone, or in a more modern context of diffusion of mobile and social network technologies, *alone together* (Turkle, 2011).

Coming now to the potential emergence of a group from a series, the bus series may become an organized group if the bus fails to arrive (thinking about a collective complaint against the transportation company, sharing a taxi, etc.). The breakdown contributes to the creation of a mutual identification and agreed goals typical of a group. Another example of seriality developed by Sartre (1960|2004) concerns radio listening. Here the series is characterized by the orientation toward a radio and its function of sound transmission and is made up of isolated listeners, who may be aware of the presence of other listeners linked through broadcasting. Also note the role of the host or DJ who explicitly refers to the series of listeners for competitions, announcements, etc. The set of objects and practices that generate and are reproduced by the series are called by Sartre the *milieu of action*, which delimits and constrains the individual action without defining the person's identity in terms of goals, projects, and sense of self in relation to others (Young, 1994).

Thus, seriality seems to be a feature that may distinguish a group (self-aware as a group) from a crowd (anonymous and interchangeable). A series is characterized by the *lack of salience* of individual differences; general *equality* characterizes its crowd members. The process of self-selection in crowdsourcing discharges the elements that are not at an appropriate level for the anonymous goals orienting the crowd, thus creating the right series. To investigate the

implications of seriality, we rely on the conceptualization by Canetti (1962), arguing for two diverse types of crowds. The natural and true crowd is the *open crowd*, having no limits to its growth, open everywhere and in any direction. The open crowd exists as long as it can grow, collapsing as soon as it cannot grow anymore. Digital channels increase the chances of serial collectivity with regard to growth rate and its attractiveness to the members.

In contrast, the *closed crowd* is characterized by permanence, a renunciation of growth, and self-established boundaries, protected from outside influence, preventing disorganized growth (size) as well as dispersion and consequent dissolution. The boundaries of the closed crowd are their entry points, which can be accessed by a limited number of people, until capacity is reached. Closed crowd interactions are based on repetition, which make the dispersion of some of its members acceptable, the important thing being its internal density. The *eruption* is the sudden transition from a closed into an open crowd, due to a blurring of the boundaries by the tendency of the individuals in the crowd to transcend their limits. This introduces *destructiveness* of the crowd as its most prominent quality, when members push and extend its boundaries. Destructiveness as an intrinsic quality of a crowd is worth considering to understand the potential of the open crowd as creative destroyer, compared with the controlled nature of the closed crowd.

Considering groups, they can be seen as what Canetti defines as *crowd crystals* (the *milieu of action* of a series in the Sartre view), that are "*the small, rigid groups of men, strictly delimited and of great constancy, which serve to precipitate the crowd…Their unity is more important than their size. Their role must be familiar*" (Canetti, 1962, p. 73). A crowd, therefore, can originate from groups, however they would differ from the closed crowd because they are smaller, less spontaneous, they allocate specific functions to their members, and their identity

survives the disintegration of the crowd. To summarize, the structural characteristics of a crowd are:

1. *Growth* rate and its attractiveness to the members,
2. *Equality* among members,
3. *Density* within provisional boundaries,
4. *Goal* orientation (a crowd exists so long as it as an unattained goal, no matter the type of goal (Canetti, 1962, p. 22)), and
5. *Seriality* of the interactions.

Density is particularly relevant because it emphasizes the role of space (whether virtual as in a digital platform or else physical) in determining the characterization of a number of people as an open/closed crowd rather than a group. As pointed out, e.g., by the UK Cabinet Office (2009) density and size are interrelated in the definition of what forms a crowd (e.g., a flow rate of people per meter per minute), as well as connected to the perception of crowding by an external observer. Consider for example 50 people located over a very large area such as a park (very low density) and the same number in a small area such as the counter of a kiosk in the same park (high density): in the second case we have a crowd, given the same number of people. One could probably arrive at a threshold effect of the density of the number of people per square meter that would give the impression of having a crowd (which might differ from country to country, depending on perceptions of "personal distance").

Consider now 50 participants in an idea competition discussing online. In this case, the size and perception of crowding can be related to (1) the number of contributions generated by the crowd, and (2) the ability of the organization to handle the contributions of the crowd in terms of the number of data scientists, the availability and storage capacity of database

management systems, as well as the availability of analytics tools. If the contributions of the crowd exceed the ability of the firm to evaluate the outcomes (e.g., the BP oil spill, as discussed by Alexy, Criscuolo, & Salter, 2012), the perception the organization might have could be of an "out of control" crowd.

> *There's [sic] so many ideas you become numb to them* — Coast Guard speaking of the suggestions from BP's crowd, cited by Alexy et al. (2012)

Thus, high density together with the other characteristics mentioned above, in particular seriality, distinguishes a crowd from groups or communities (von Hippel, 2005), with a consequent difference as to their management and planning of related initiatives.

Consequently, an interesting definition of crowd can be the one provided by the 2009 report from the UK Cabinet Office as *"a sizeable gathering of people in a given location, with a sufficient density distribution, who have come together for a specific purpose over a measurable period of time and who, despite being predominantly strangers or in an unfamiliar situation, feel united by a common identity and are, therefore, able to act in a socially coherent manner."* However, it is worth noting, that such a definition seems to emphasize the closed crowd as the subject and target of crowd management, preventing the eruption of an open crowd and its unpredictable consequences. This is also true for current perspectives on crowdsourcing; despite some initiatives counting a hundred thousand participants, they are nonetheless bounded in nature, preventing the loss of institutional control consequent to a change in the crowd towards a real open form. Besides the structural characteristics mentioned above, others related to organizational facets are worth considering (see also Berlonghi 1995). Table 1 shows characteristics worth considering for answering the key questions for an effective understanding and management of crowds in crowdsourcing initiatives.

Table 1. Behavioral and structural characteristics and key questions for crowd management in crowdsourcing.

Behavioral characteristics of the crowd	**Structural characteristics of the crowd**	**Key questions**
Complexity	Seriality	How organized and structured is the crowd?
Leadership	Goal orientation	How established or spontaneous is the leadership among the members of the crowd? How much may they deviate from the crowdsourcing goals?
Acquaintance	Density	To what degree have members of the crowd connected with one another prior to the initiative?
Psychological unity	Equality	How psychologically united are the members of the crowd, thus avoiding antagonism altering the competition or the collaboration?
Emotional intensity	Seriality	How emotionally engaged is the crowd?
Volatility	Growth	To what degree are the crowd's boundaries changing, disrupting the established competition or collaboration boundaries?
Concentration of influence	Seriality	To what degree are crowd members influenced or dominated by one or more groups?
Degree of accountability	Equality	How much "lurking" and similar behaviors are taking place?

Also, Table 1 shows for each theme the structural characteristics suitable to support the definition of evaluation measures and control parameters. The latter are worth considering when

organizations aims to develop initiatives solving their internal information gaps or looking for new ideas for product or service development.

Crowd as a solution to distant search: when is the right time?

Solving problems and having the right information for the right product or service development remains a challenge for many top managers (Afuah & Tucci, 2013). Indeed, the unprecedented growth of available information through digital infrastructures makes it a relevant asset to reduce uncertainty in decision making (The Economist, 2010; Viscusi & Batini, 2014). Consequently, the information industry is continuously expanding, encompassing media such as newspapers and televisions, credit rating agencies, market research firms, financial analysts, social media such as Youtube, Facebook, Linkedin, and Twitter, but also small companies and individual experts, e.g., in finance, law, engineering, and medicine (Sarvary, 2012). Its focus is actually on selling information products, that is, products that can be codified and "digitized," used in decision making, and paid for by decision makers (Sarvary, 2012; Shapiro & Varian, 1998). In this scenario, crowdsourcing can be a valuable alternative under certain conditions highlighted by Afuah and Tucci (2012), questioning *when might crowdsourcing be a better mechanism for solving problems than the alternatives of either solving them internally or designating an exclusive contractor to solve them?*

The Internet and available digital platforms (Gawer & Cusumano, 2014) enable better performance of tasks through crowdsourcing, involving more arm's-length transactions than traditional outsourcing to a designated contractor. Thus, Afuah and Tucci (2012) opened the black box of the current market configuration, arguing that

i) the market today actually includes crowdsourcing as a relevant actor,

ii) crowdsourcing may be able to transform distant into local search, without the costs usually associated with the former by the information market.

However, crowdsourcing adoption and the consequent transformation can happen under certain circumstances as shown in Table 2.

Table 2. Variables and characteristics related to crowdsourcing adoption in distant search (Afuah & Tucci, 2012).

Variable	**Characteristics**	**Description**
Problem	-Ease of delineation -Ease of transmission -Modularizability	The problem is easy to delineate and transmit, having a low degree of associated tacitness and complexity. Furthermore, the problem can be easily separated into components.
Knowledge	-Effective distance -Tacitness -Complexity	The knowledge required to solve a problem is neither from the company's area of expertise nor in its possession, having a high degree of tacitness and complexity, likewise.
Crowd	Pervasiveness of know-how	The more pervasive the problem-solving know-how in a crowd, the higher the likelihood of self-selectors to solve the problem.
Solution	Experience orientation	The solution requires an evaluation after its use.
Evaluator	Experience orientation	The solution requires a high number of users for the evaluation.
Information Technology (IT)	-Pervasiveness -Low cost	IT has a moderating effect on the other characteristics, when its diffusion is high and adoption costs are low.

IT platforms may also be suitable to moderate the core structural characteristics of a crowd, such as seriality, equality among members through self-selection, density as a quality of the closed

crowd with a controlled growth and appropriate search neighborhoods (ensuring again equality as self selection). Modularity is also relevant to equality as self selection, considering that more modular problems increase crowd members' incentives to self-select and engage in solving the problems (Afuah & Tucci, 2012; Baldwin & Clark, 2006).

Taking the above issues into account, while crowdsourcing problem solving and exploratory activities may be related to what we have called the closed crowd under the control of a given company as simply another form of outsourcing, today we can actually observe crowdsourcing as the symptom of the emergence of new forms of organizations and entrepreneurship. Thus, in contrast with the concept of an open crowd as a "disturbance" or "erratic," an open crowd may actually propose something completely new, which means that an open crowd also has value to the organization.

Ideas come next: the rise of crowd-driven entrepreneurship

Many current tech startups are actually the symptoms of a new breed of entrepreneur characterized by a set of characteristics that we have identified as supporting the definition of *what a crowd is* and *when crowdsourcing is worth* adopting. Indeed, they have been considered as devoted to "combinatorial innovation" (McKinsey, 2009), applying known techniques to new problems through continuous experimental activity on available digital platforms, providing open-source software or cheap pay-as-you-go services (The Economist, 2014), thus combining *seriality* of interactions and *modularity* of problems enabled by pervasive and low cost information technology (see Table 2). Other characteristics bringing crowd activity and today's entrepreneurs are *goal orientation* as well as *growth orientation*, due to their tendency to seek out business models leading to fast and profitable growth (The Economist, 2014). Furthermore,

the organizational structure of tech start-ups is made by a small group of "executives" who are usually the founders of the business, with complementary skills (for example the computer scientist Mark Zuckerberg and his economist roommate Eduardo Luiz Saverin).

Contrary to past practices, in many cases the team develops a new product or service only after working on several ideas through design thinking, rapid prototyping, and A/B testing (The Economist, 2014). Here, idea competitions and crowdfunding appear to be the main *interfaces* supporting interfirm modularity (Staudenmayer, Tripsas, & Tucci, 2005) at the startup level, thus providing a virtual and flexible way towards a *semiformal* organization (Biancani, McFarland, & Dahlander, 2014), whose identity is characterized by *multiplicity* rather than the monolithic shape of traditional formal organizations. Multiplicity here does not refer to a dominant player plus periphery within a business ecosystem, but an organization that belongs to the many (DeLanda, 2002) such as the open crowd, and where the new company can be seen as what we called above a *crowd crystal*. The crowd-driven entrepreneurs exploit open crowd resources (for example, made up by participating in several closed crowd initiatives such as ones by Innocentive) as continuously generating their virtual organizational form from the actual different crowdsourcing processes in which the tech startup participates. This process of constant actualization of a virtual organization encompasses the need for business model reconfiguration rather than design. However, it is worth noting that crowd crystals may evolve or participate in less serialized forms of collectives such as traditional online communities (Armstrong & Hagel, 1996), where people form personal relationships through maintained discussion (Rheingold, 2000) rather than anonymous goal orientation. The two forms have a similar growth orientation as do open crowds. However, on-line communities, lacking seriality and equity as self-selection,

may not create a virtual organizational form for tech start-ups but rather are a starting point for new team building that may eventually lead to new tech startups.

Key questions for the crowd-oriented organization

Crowdsourcing today is not only an alternative—and an often efficient one—for problem solving and collaboration activities for formal organizations exploiting what we have called the *closed crowd*, but also and most importantly the interface for new kinds of organizational forms relying on what we have called the *open crowd*. To provide an improved understanding of crowd driven innovation initiatives actually managed by a given company or entrepreneurs, Figure 1 shows a typology according to their growth tendency (vertical axis of Figure 1) and degree of seriality (horizontal axis of Figure 1).

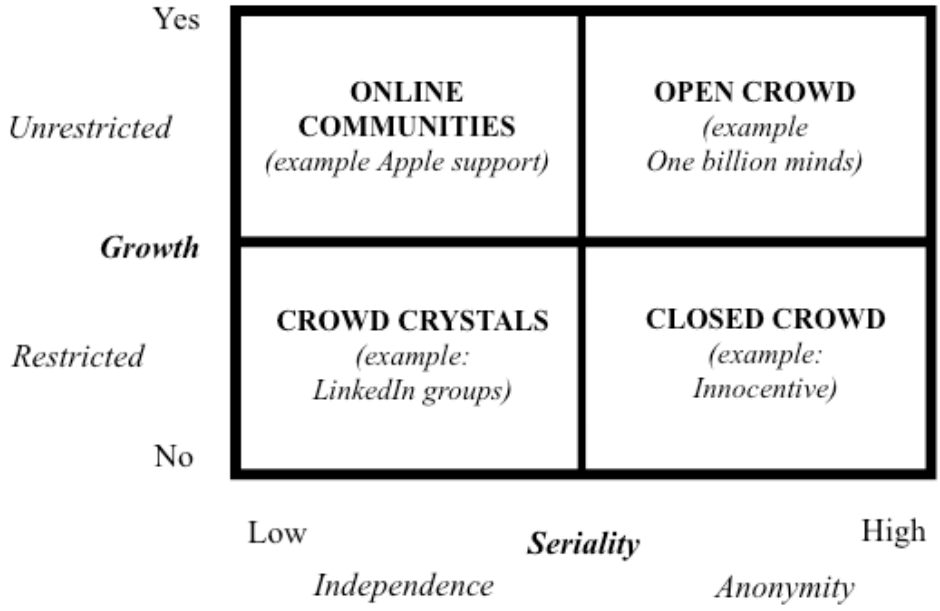

Figure 1. Types of crowds with regard to growth tendency and degree of seriality.

In what follows, we briefly analyze the crowd-driven initiatives in Figure 1, providing examples of platforms supporting them and discussing their plusses and minuses.

In the lower left quadrant, we have the *crowd crystal*. To understand its plusses and minuses we consider the business-oriented social networking platform LinkedIn's Groups. LinkedIn Groups can either be *external* (with different degree of restriction to the access), mainly targeting individual employees or managers, or else *internal*, that is, designed for the specific internal needs of a given company. This service has several plusses. First, it is relatively easy to set up and monitor activity in the group. Second, it can be used to analyze what kinds of expertise one's company has in the area(s) represented by the group. For example, in both external (open) and internal groups on a certain topic, one can ascertain quickly who from the company is participating and what sorts of expertise they have, along with a social network structure within the company itself on that topic. This knowledge could also be used to launch other types of crowd-driven initiatives, such as idea competitions. In addition, internal LinkedIn Groups can also result from former community projects, starting from one of the teams created to work on a certain topic, such as changes in work practices, human resource management, or technology trend identification for the years to come. However, external LinkedIn Groups allow for both monitoring the specific competences and skills of employees or managers and identifying a connected population with similar characteristics outside the organization's boundaries. Also, the company's presence in these external LinkedIn Groups may be managed or coordinated with an eye toward external relations and branding with regard to crowd-driven initiatives promoted by the company for different purposes.

Though both kinds of LinkedIn Groups represent "crowd crystals," this type of crowd has minuses in terms of lack of scale, fewer ideas, as well as less input, in addition to a low degree of seriality due to the topical rather than goal orientation, thus making them close to an online community. However, LinkedIn Groups can also evolve towards either open or closed crowd

types, they nonetheless require a stronger, specific goal orientation as well as analytics and storage capacity that are typical of platforms such as Innocentive, discussed in what follows for the *closed crowd* type in the lower right quadrant.

Innocentive is actually an innovation intermediary used by companies to solve highly defined technical problems via challenges in ways that often do not reveal the company's identity. The resulting *closed crowd* (see the lower right quadrant of Figure 1) has massive access to the state of the art for the topic subject of the competition, with a lower probability of leaking information. However, the minuses of Innocentive-like crowds are related to their being outsourcing- and narrow goal-oriented, thus neither building nor recognizing, and consequently keeping in house, the capabilities emerging from the crowd. The narrow outsourcing orientation of this kind of approach to a closed crowd may prevent R&D from understanding the participants and social structure of the crowd itself, in contrast to the crowd crystal case. For example, there may be potential "dealmakers" (Feldman & Zoller, 2012) acting in multiple crowds for their own business development but the company will be unaware of the presence of the same parties across competitions. A company could perform an internal crowdsourcing exercise; however, lacking external expertise (not to mention potential leakage of sensitive information). In a sense, in the closed crowd as implemented through the fixed boundaries of platforms such as Innocentive, the firm is forced to modularize the problem (Afuah & Tucci, 2012; Schilling, 2000); whereas the open crowd is characterized by "generativity" (ability to evolve digitally without pre-planning the design or usage (Yoo, 2013)) typical of large, varied, and uncoordinated audiences (Zittrain, 2006).

Before moving to the open crowd, we discuss *online communities* in the upper left quadrant. Examples of them span from communities built on platforms such as, e.g., Socious,

Apple support communities (from the point of view of an end-user), or the Academy of Management (the main global association of management scholars) Division communities. Apple support communities show how a crowd crystal may grow in an unrestricted fashion, losing the seriality character of the crowd, thus becoming no longer anonymous, and finally reaching a "community" status, sharing the characteristics identified above for groups. Communities have the plusses of being a well-known knowledge and innovation management topic for both practitioners and academics (West & Lakhani, 2008). However, they may present drawbacks due to the role of identity and beliefs in their cohesiveness, not making them easily adaptable to different, conflicting and heterogeneous goals, thus not very flexible. Large academic associations provide an interesting example of the difference between online communities and crowd crystals. Consider divisions within the Academy of Management. They can actually be considered communities in which academics and practitioners can discuss, share ideas, etc. on a specific topic (for example, Technology and Innovation Management or Organizational Communications and Information Systems). However, they could evolve in different directions. In one direction, members could create smaller groups to discuss more narrow topics or as a support to a physical meeting, which then could be monitored by external parties. Due to their initial delimitation, constancy of membership, and skills self-selection, this could give rise to what we have defined above as a crowd crystal. In another direction, members could potentially nurture a much bigger open crowd, without restriction to membership in the Division, as well as a different very large online community (depending on its degree of seriality and anonymity, see below).

Finally, in the upper right quadrant of Figure 1, we have the *open crowd*. Some examples of the open crowd are One Billion Minds (a platform connecting people who would like to create

or participate high-impact social projects) and Threadless, the creative e-commerce platform. These companies provide a nice illustration of how an online community can evolve towards an open crowd. Recall that an open crowd is appropriate when problem-solving couples with creativity or social needs. Threadless, for example, is receiving input from a crowd, but in reality mainly learning about customers and marketing directly to the crowd as customers. Thus, an open crowd has among its plusses, the access to a wider range of ideas, including crazy ideas (this is both a plus and minus, depending on the analytics and storage capacity of the company). Also, when originating from online communities, it can reduce the costs of providing incentives and motivation often related to crowdsourcing initiatives. Therefore, an open crowd is suitable as a strategic instrument for R&D for understanding which ideas for new products and services could be viable, as well as the kind of business model innovation required (business model design or reconfiguration (Massa & Tucci, 2014). Accordingly, an open crowd coupled with the right storage and analytic infrastructure can make businesses more aware of a disruptive change emerging in the competitive environment. As a consequence, the main minuses of an open crowd are related to the need for investments in big data and analytics to get the right information capacity as the current stock of understandings informed by a given installed base (Viscusi & Batini, 2014). Other disadvantages are related to the misalignment between the volume of ideas and preferences, and return on investment, considering that, e.g., there is no deterministic connection between what people endorse and what people actually buy, as the Threadless case has shown (O'Keefe, 2014).

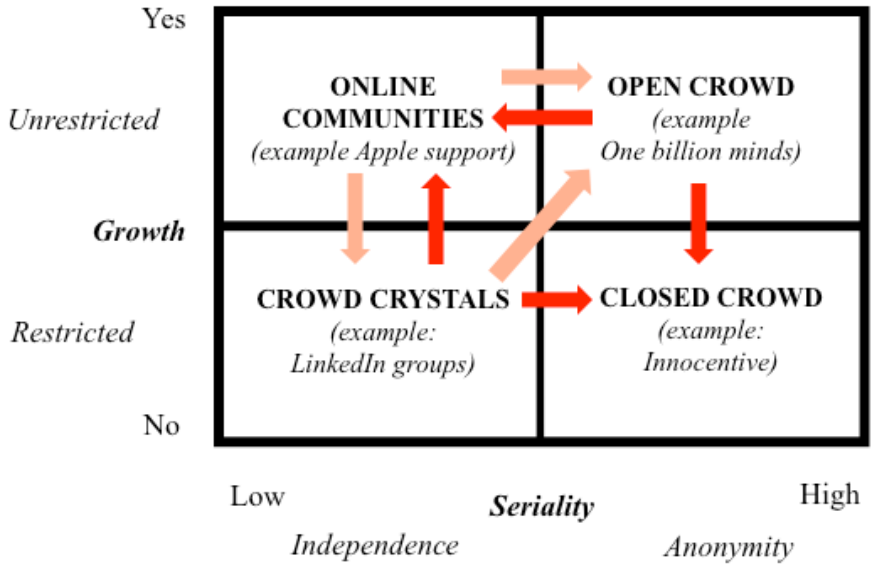

Figure 2. Dynamics and movement between quadrants.

Considering the above-mentioned plusses and minuses, managers may want to position themselves to solve their crowd-driven innovation problems. However, certain pathways may be easier to move down than others. As shown in Figure 2, a crowd crystal can lead to either an online or a closed crowd (not necessarily leading to an open crowd, as shown by the red arrows in Figure 2), or an open crowd (thus, being really a key starting point for crowd driven innovation). However, as said above, a crowd crystal can also emerge from an online community, leading to an open crowd (path represented by rose-colored arrows in Figure 2). Finally, an open crowd could move toward online communities and closed crowds, but closed crowds may not give rise to crowd crystals (path represented again by red arrows in Figure 2).

Taking the above issues into account, the majority of crowdsourcing initiatives sponsored by organizations seem to actually be more like crowd crystals or closed crowds, in which there is a control orientation with regard to crowd boundaries, density, and goals. However, these initiatives could be shifted toward different forms, depending on the goals of the organization.

Business model design for effective exploitation and execution of the outputs of the diverse crowdsourcing initiatives will be key.

In terms of innovation, while there are many innovation outcomes possible in each of the quadrants, it is clear that firms may find it difficult to cross the "frontier" between closed and open crowds, due as discussed above to the fact that a third party controls access to the crowd, which may impede knowledge flows across organizational boundaries after the exercise is over. While the output of the closed crowd initiative may be useful as outsourcing problem-solving for a specific problem, it may later on hamper "outside-in" knowledge flows (Chesbrough & Bogers, 2014). Incumbents may prefer the control of the crowd crystal or closed crowd over the chaos of the open crowd, which may be characterized by virtuality, multiplicity, and pressure for constant reconfiguration of business models.

The effect on industries and organizations by open crowds are still to be explored, possibly via the mechanisms of entrepreneurs exploiting open crowds as new entrants, but also for the configuration of industries such as, e.g., finance, pharmaceuticals, or even the public sector where the value created usually comes from interpretation issues and exploratory problem solving. Indeed, considering crowd-driven entrepreneurs and open crowd challenges as well as insights from research on interfirm networks (Ravindranath, Gnyawali, & Jinyu, 2004), the answer to the title question may well be: "Yes, three's a crowd!"

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